

# Signal isolator - MACX MCR-EX-SL-NAM-NAM - 2866006

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Ex i NAMUR signal conditioner. For operating Ex i proximity sensors and switches in the Ex area. Passive transistor output (resistive according to EN 60947-5-6), line fault transparency, up to SIL 2 according to IEC 61508; screw connection.

## Your advantages

- ✓ Signal input: intrinsically safe [Ex ia]; for NAMUR proximity sensors (EN 60947-5-6) or switch contacts
- ✓ Signal output with resistive behavior (transistor), according to EN 60947-5-6
- ✓ Signal output with line fault transparency, line fault indication directly via the signal output to SPS or PLS
- ✓ Up to 5 kHz switching frequency
- ✓ Direction of operation can be selected
- ✓ Line fault detection (LFD) can be enabled and disabled
- ✓ SIL 2 according to IEC 61508/EN 61508
- ✓ 3-way electrical isolation
- ✓ Power supply and error indication possible via DIN rail connector
- ✓ Plug-in connection terminals, screw connection technology
- ✓ Installation in zone 2 permitted
- ✓ Housing width: 12.5 mm



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356667876

## Technical data

### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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## Dimensions

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## Technical data

### Dimensions

Width	12.5 mm
Height	99 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Degree of protection	IP20
Noise immunity	EN 61000-6-2

### Input data

Non-load voltage	8 V DC ±10 %
Switching points (attenuated)	< 1.2 mA (blocking)
Switching points (unattenuated)	> 2.1 mA (conductive)
Signal input	Intrinsically safe
Available input sources	NAMUR proximity sensors (EN 60947-5-6)
Switching hysteresis	< 0.2 mA
Line fault detection	Break 0.05 mA < IIN < 0.35 mA
	Short circuit 100 Ω < RSensor < 360 Ω

### Output data

Switching output	Resistive (transistor, passive)
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### Power supply

Nominal supply voltage	24 V DC
Supply voltage range	9.6 V DC ... 30 V DC (12 V DC ... 24 V DC (-20 % ... +25 %))
Power dissipation	< 0.6 W
Power consumption	< 600 mW

### Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 14
Torque	0.5 Nm ... 0.6 Nm

### Connection data 2

Connection name	Test socket
Max. diameter	2.3 mm

### General

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## Technical data

### General

No. of channels	1
Status display	Green LED (supply voltage)
	LED yellow (switching state)
	Red LED (line errors)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	II
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Input/output/supply, DIN rail connector
Electrical isolation	300 V <sub>rms</sub> (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
	2.5 kV (50 Hz, 1 min., test voltage)
Designation	Input/supply, DIN rail connector
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3G Ex nA IIC T4 Gc X
IECEX	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA IIC T4 Gc
UL, USA/Canada	UL 61010 Listed
SIL	2

### Safety characteristic data

Safety Integrity Level (SIL)	1
	1

### Safety data

Max. internal inductance L <sub>i</sub>	negligible
Max. internal capacitance C <sub>i</sub>	negligible
Max. output voltage U <sub>o</sub>	9.6 V
Max. output current I <sub>o</sub>	10 mA
Max. output power P <sub>o</sub>	25 mW
Group	IIC
Max. external inductivity L <sub>o</sub>	100 mH
Max. external capacity C <sub>o</sub>	3.6 µF

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## Technical data

### Safety data

Group	IIB/IIIC
Max. external inductivity L <sub>o</sub>	100 mH
Max. external capacity C <sub>o</sub>	26 µF
Group	IIA
Max. external inductivity L <sub>o</sub>	1000 mH
Max. external capacity C <sub>o</sub>	210 µF
Safety-related maximum voltage U <sub>m</sub>	253 V AC/DC

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3G Ex nA IIC T4 Gc X
IECEX	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA IIC T4 Gc
UL, USA/Canada	UL 61010 Listed
DNV GL-Temperature	B
DNV GL-Humidity	B
DNV GL-Vibration	A
DNV GL-EMC	A
DNV GL-Enclosure	Required protection according to the Rules shall be provided upon installation on board
Group	IIC
	IIB/IIIC
	IIA

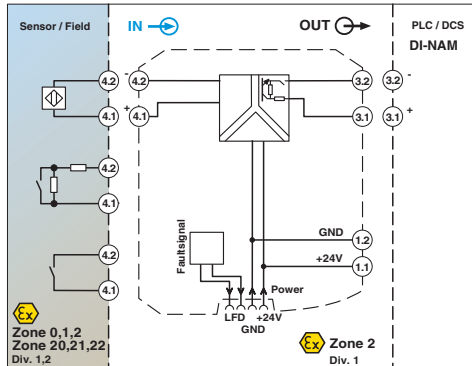
### Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

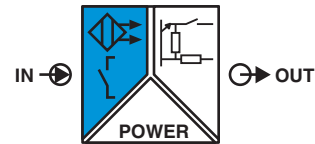
## Drawings

# Signal isolator - MACX MCR-EX-SL-NAM-NAM - 2866006

Block diagram



Pictogram



## Approvals

### Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / DNV GL / cULus Listed

Ex Approvals

IECEX / ATEX / UL Listed / cUL Listed / EAC Ex / cULus Listed

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330267
cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330267
Functional Safety			12/06-054 R016 V2R0
DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA000020C

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### Approvals

cULus Listed



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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>